

WHAT IS CLAIMED IS:

1. An optical fiber comprising: a center core portion, a side core portion and clad portion in an order from an inner side, which has a dispersion value of 14 ps/nm/km or higher and 20 ps/nm/km or less at a wavelength of 1550 nm, a dispersion slope of 0.05 ps/nm²/km or higher and 0.08 ps/nm²/km or less at a wavelength of 1550 nm and a transmission attenuation of 0.2 dB/km or less at a wavelength of 1550 nm,
5 wherein a relative refractive index difference $\Delta 1$ between the center core portion and the clad portion is 0.25% or larger and 0.50% or less, a relative refractive index difference $\Delta 2$ between the side core portion and the clad portion is 0.05% or larger and 0.30% or less, an inequality $\Delta 2 < \Delta 1$ is satisfied, a ratio a/b between an outer diameter a of the center core portion and an outer diameter b of the side core portion is 0.3 or higher and 0.7 or less, and an effective core area A_{eff} at a wavelength of 1550 nm is 10 15 20 90 μm^2 or larger.

2. An optical fiber according to claim 1, wherein the relative refractive index difference $\Delta 1$ is in a range of 0.33% to 0.4%, the $\Delta 2$ is in a range of 0.15% to 0.2%, the ratio a/b between the outer diameter a of the center core portion and the outer diameter b of the side core portion is in range of 0.4 to 0.6, and the effective core area A_{eff} at a wavelength of 1550 nm is 25

100 μm^2 or larger.

3. An optical fiber according to claim 1, wherein the outer diameter b of the side core portion is in a range of 10 to 40 μm .

5 4. An optical transmission line comprising a plurality of optical fibers, configured to transmit an optical signal, wherein at least one of said plurality of optical fibers is an optical fiber according to claim 1.